

What is claimed is:

[Claim 1] A unit for storing at least one hard disk drive, including: two side panels mounted in parallel with each other, such that both sides of said at least one hard disk drive is in contact with a suspension system; a set of slots for a plurality of hard drives separated by dividers, said number of slots corresponding to said number of disk drives; said suspension system comprising a polymer compression member incorporated into each of said dividers; wherein each of said polymer compression members contacts each of said disk drives at said upper and lower surfaces.

[Claim 2] The unit for storing at least one hard disk drive as recited in claim 1, wherein said polymer compression member is an arched beam that is incorporated into each of said dividers.

[Claim 3] The unit for storing at least one hard disk drive as recited in claim 1, wherein said polymer springs include a material chosen from the group consisting of valox, delrin, hytrel, zytel, or noryl.

[Claim 4] The unit for storing at least one hard disk drive as recited in claim 1, wherein there is more than one set of said polymer springs said set of polymer springs made of at least two different materials.

[Claim 5] The unit for storing at least one hard disk drive as recited in claim 1, wherein said compression member is configured as multiple arches.

[Claim 6] The unit for storing at least one hard disk drive as recited in claim 1, wherein a horizontal compression member contacts the hard drives on the upper and lower surface of the devices.

[Claim 7] The unit for storing at least one hard disk drive as recited in claim 1, further comprising at least one complementary compressive member contacting said at least one hard drive on the sides of the devices, such that they engage the sides of the hard drive.

[Claim 8] The unit for storing at least one hard disk drive as recited in claim 7, wherein said at least one complementary compressive member is mounted in the center of the slots of said side panel.

[Claim 9] The unit for storing at least one hard disk drive as recited in claim 8 wherein said at least one complementary compression member is made of a flexible polymer and have an arched structure that is attached at the ends of the beam to the side panel.

[Claim 10] The unit for storing at least one hard disk drive as recited in claim 1, wherein said multiple beams are configured to have varying stiffness.

[Claim 11] A unit for storing at least one hard disk drive, including: two side panels mounted in parallel with each other, such that both sides of said at least one hard disk drive is in contact with a suspension system; a set of slots for a plurality of hard drives separated by dividers, said number of slots corresponding to said number of disk drives; said suspension system comprising at set of polymer compression members incorporated into each of said dividers; wherein each of said polymer compression members contacts each of said disk drives at said upper and lower surfaces; and wherein said multiple compression members are configured to have varying stiffness.

[Claim 12] A method for reducing the vibration in a hard disk drive using the system as recited in claim 11, including the step of configuring said multi-stiffness beams to work in unison with at least another of one of said of beams.

[Claim 13] A system for housing a hard disk drive including: a first and second side panel of a housing, said second side panel mounted in parallel with the said first side panel; wherein said first and second side panels having at least one slot for including at least one disk drive; a first set of compressive members made of a polymer, and configured such that both the top and bottom of said at least one disk drive; and a second set of compressive members made of a polymer, and configured such that both of said sides of said at least one disk drives are in contact with a set of polymer springs; wherein said at least one disk drive is held firmly in place by said first and said second set of compressive members, whereby said rotational and external vibrations are reduced.

[Claim 14] The system as recited in claim 13, further including a set of slots which are separated by dividers.

[Claim 15] A system for controlling vibration in a hard disk drive including: a housing with two side walls and a slot for a hard disk drive, said side walls including a horizontal compression structure made of polymer means, said stiffness of said compression structure increased through a stiffening step.

[Claim 16] The system for controlling vibration in a hard disk drive as recited in claim 15, wherein said polymer means are selected from among the group consisting of: Noryl, Lexan, Valox, Delrin, Hytrel, and Zytel.

[Claim 17] The system for controlling vibration in a hard disk drive as recited in claim 15, wherein the cross section of said compression member is matched to the expected loading of the application.

[Claim 18] The system as recited in claim 15, wherein said stiffness resulting from a change in curvature of a part.

[Claim 19] A method for reducing the vibration in a hard disk drive using the system as recited in claim 18, including the step of configuring said multi-stiffness beams to work in unison with at least another of one of said of beams.

[Claim 20] The method as recited in claim 19, wherein said load becomes more aggressive.